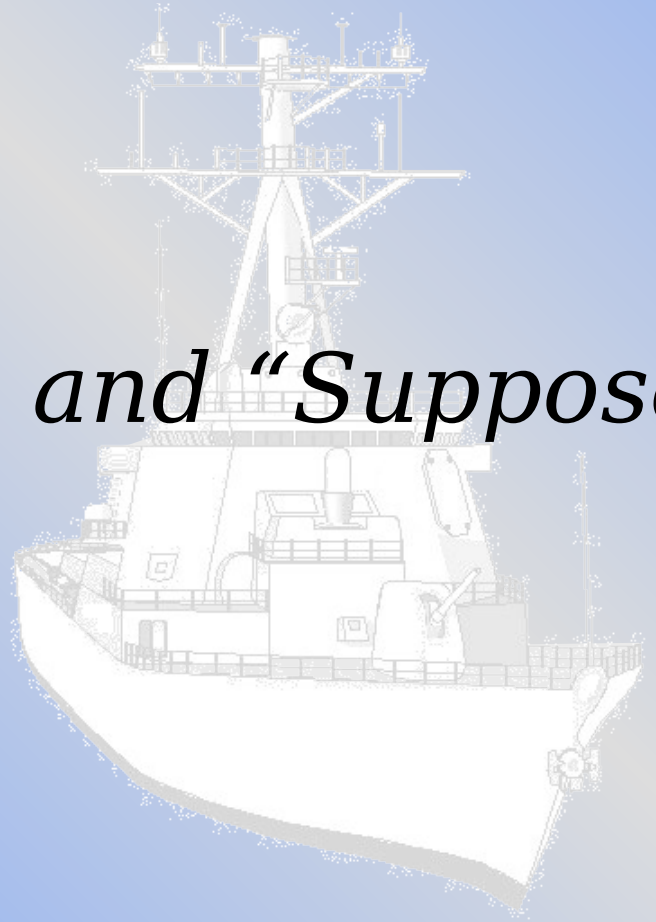
Command Level Availability Management Brief

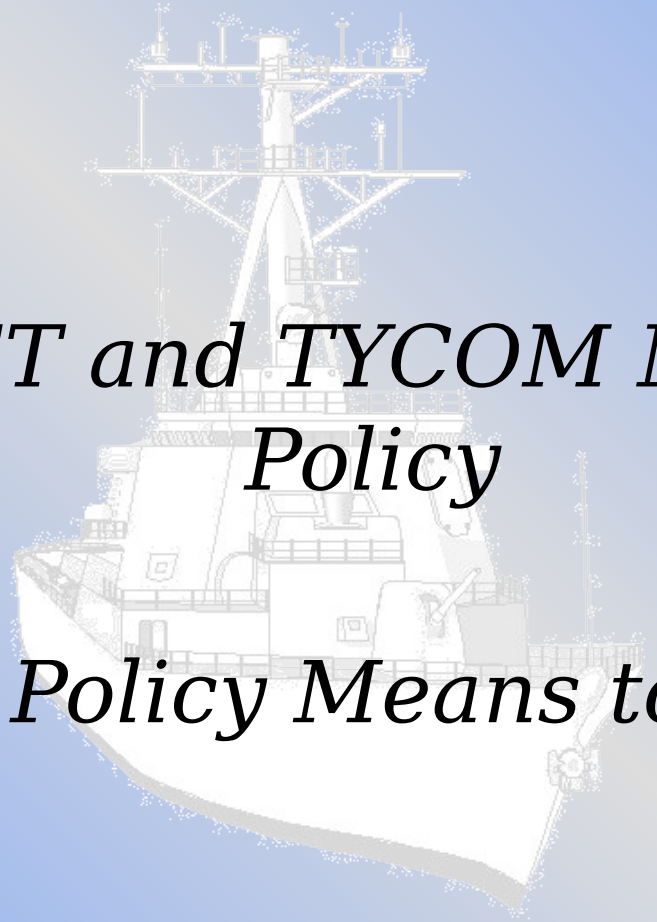
Policy

Session Summary



“Should” and “Supposed to be”

Maintenance Policy



NAVY, FLEET and TYCOM Maintenance Policy

What the Policy Means to the Ship

Building The Culture Of Readiness and Keeping On Message

A transformation of the Navy's maintenance system that will make the most effective and efficient use of current resources in order to provide a naval force with greater availability for national security speed of response requirements, while shaping our industrial base to maintain and build the 21

- *Initiatives include*:
  - *SHIPMAIN*
  - *'One Shipyard' concept*
  - *Regional Waterfront Integration*
  - *Distance Support*

A Series Of In Sync
Instructions Notices
Letters & Messages

Maintenance Policy & Process Sources

- *Primary Sources*
  - *CNSLINST 9000.20 (Continuous Maintenance)*
    - *http://www.spear.navy.mil/9000.20/9000cm.doc*
  - *COMNAVSURFORNOTE 4701*
    - *dtd 31 Dec 2003 (Validation, Screening, Brokering)*
  - *COMNAVSURFORNOTE 4702*
    - *dtd28 Jun 04 (Work Package Preparation)*
  - *COMNAVSURFORNOTE 4703*
    - *dtd 26 Jan 2004 (Maintenance Placement and Oversight)*
  - *COMFLTFORCOMINST 4790.3 Rev A (JFMM)*
- *Supporting Sources*
  - *OPNAVINST 4700.7K (Maintenance Policy for U.S. Navy Ships)*
  - *OPNAVINST 4790.4D (3-M Instruction)*
  - *NAVSEAINST 4790.8B (3-M Manual)*
  - *OPNAVINST 3120.32C (SORM)*
  - *COMNAVSURFOR/SURFLANT directives*
  - *COMNAVSURFOR/SURFLANT Letters & Messages*

Navy Maintenance Policy (OPNAVINST 4700.7K)

- *Use of standardized equipment, components, and processes*
- *Availability of ILS*
- *Planning & scheduling of dry dockings*
- *Overseas depot maintenance*
- *Use of public vs. private shipyards*
- *Comprehensive material readiness metrics*
- *Resolution of largest impact technical issues (TMA/TMI)*
- *Effects of quality of life on CNO-scheduled depot periods*

Navy Maintenance Policy (OPNAVINST 4700.7K, cont.)

- *CSMP primary repository of material condition information*
- *Tailored maintenance program developed & maintained for each ship class*
  - *Based on CBM methodology using RCM principles*
  - *Emphasize accomplishment of maintenance on continuous basis*
  - *Minimize time in depot maintenance*
  - *Ensure ships are as self-sufficient as possible*
- *Maintenance performed by qualified personnel using correct procedures*
- *Ship configuration controlled through formal change process*

Joint Fleet Maintenance Manual

- Volume I – New Construction
- Volume II – Integrated Fleet Maintenance
- Volume III – Deployed Maintenance
- Volume IV – Tests, Inspections
- Volume V – Quality Maintenance
- Volume VI - Maintenance Programs

JFMM Rev A, Volume II Integrated Fleet Maintenance

- Maintenance & Modernization Program
- CNO Scheduled Maintenance Availabilities
- Type Commander Maintenance Availabilities

JFMM Rev A, Volume II
Integrated Fleet Maintenance

- *Maintenance & Modernization Program*
  - *Levels of maintenance*
  - *Maintenance & modernization principles*
  - *Integrated Fleet Maintenance Management*
  - *Fleet Technical Support*
- *CNO Scheduled Maintenance Availabilities*
  - *Policies & procedures*
  - *Planning*
  - *Execution*
- *Type Commander Maintenance Availabilities*
  - *Policies & procedures*
  - *Upkeep & Fleet Maintenance Activity availabilities*
  - *RAV, TAV Voyage Repairs*

CNSFNOTE 4702 changing

JFMM Rev A, Volume IV Tests & Inspections

Highlights:

- *Boilers, diesel & gas turbine engines*
- *System Test Check List*
- *Work Authorization & Control (more later)*
- *Plus MSDs, Elevators, Weight Handling, Hull Inspection, Magazine Sprinklers, Circuit Breakers (new), ALRE, …*

JFMM Rev A, Volume V Quality Maintenance

- *Organizational Responsibilities*
- *Quality Maintenance Processes*
- *Personnel Qualification & Training*
- *Welder, Brazer & NDT Qualifications*
- *In-Process and Material Controls*
- *Testing Requirements*
- *Departure from Specification*
- *Audits, Surveillance, Evaluations & Assessments*
- *QA Records*

JFMM Rev A, Volume VI Maintenance Programs

Highlights:

- *Fleet Modernization Program*
  - *Ship's Alteration Coordinator*
- *Waterborne Underwater Hull Cleaning (new)*
- *Common Assessment Program (re-titled)*
  - *HME-RA/C5RA*
- *Fleet Technical Assistance (new)*

JFMM Rev A, Volume VI Maintenance Programs

Highlights (Con't):

- *INSURV Inspections*
  - *Scheduling of supporting assessments (HMERA, C5RA) (new)*
  - *Scheduling of UMI (new)*
- *Cannibalization*
- *3-M (more later)*
- *Plus SEMCIP, IPE, 2-M repair, METCAL, Small Boats, Degaussing, Corrosion Control, Ammo Offload, Habitability, ICCP, Cableway Assessment, Heat Stress, Portable Tools, …*

CNSLINST 9000.20 Purpose

- *Publish Continuous Maintenance*
  - *Policy*
  - *Process*
  - *Roles*
  - *Responsibilities*

COMNAVSURFORNOTE 4701 Validation, Screening & Brokering

Principle Elements

- Maintenance Team
- Planning Board for Maintenance
- Maintenance Business Plan
- Requirements process metrics

COMNAVSURFORNOTE 4702
Work Package Preparation

Principal Elements

- Executing Activity Planning
  - Continuous Planning
- Master Specification Catalog
- Planning Milestones
  - Planning Flow Metrics

COMNAVSURFORNOTE 4703
Placement and Oversight

Principle Elements - Executed to Reduce Pre

- Placement
- Maintenance & Modernization Business Plan
- Maintenance Figure of Merit
- Business Case Analysis
- Multi-Ship/ Multi-Option Contract
- Proposal
- Proposal Evaluation
- Definitization
- Reservation
- Option Item
- Growth
- New Work
- Technical Analyst
- Continuous Technical Advisory Report
- Summary of Events
- Premium
- Churn

Continuous Maintenance Objective

*"Prepare **mission** ready ships for operating commanders"*

Achieving the Objective

- Obtain maintenance resources by
  - Identifying
  - Prioritizing
  - Advocating

  } maintenance requirements
- Allocate resources
  - Optimize ship material readiness across the
- Maximize efficiency and effectiveness of
  - Level-load planning and executing activities
- Continuously improve all related process

Maintenance Management

…is management of "wear" and

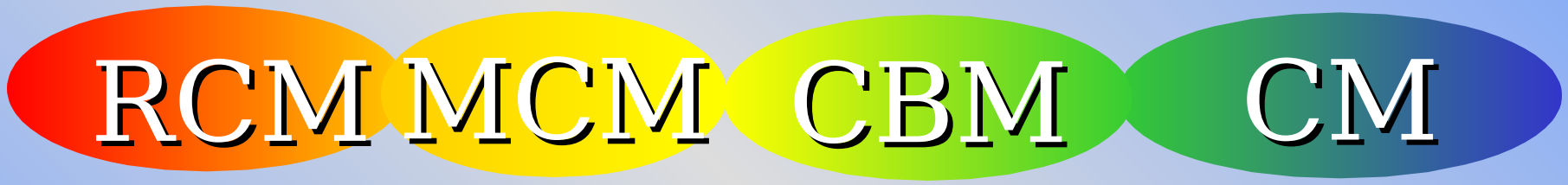
Begins with …

- *Identifying hull, system, equipment to maintain*
- *Determining how each wears and fails*
- *Evaluating importance and urgency of failures*
- *Developing strategy to schedule maintenance tasks*
  - *Prevent or restore wear*

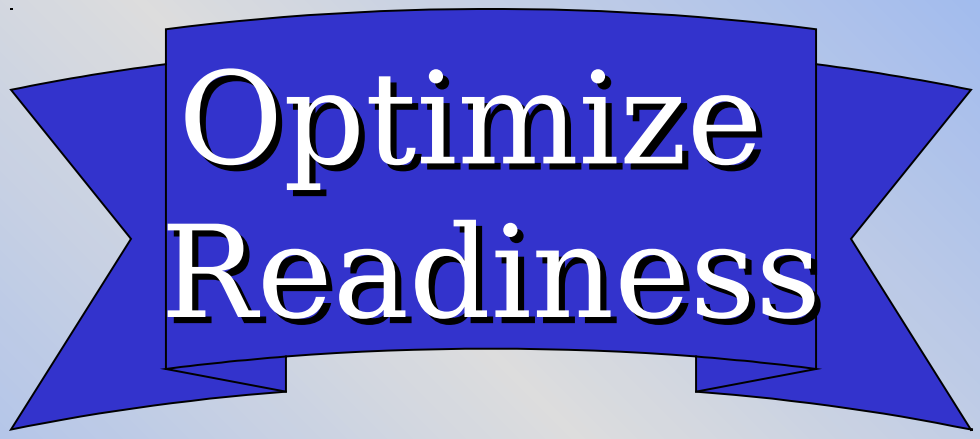
<u>Before</u> ships are built

A Contemporary Maintenance Strategy

- That embraces



- In order to …



Reliability-Centered Maintenance (RCM)

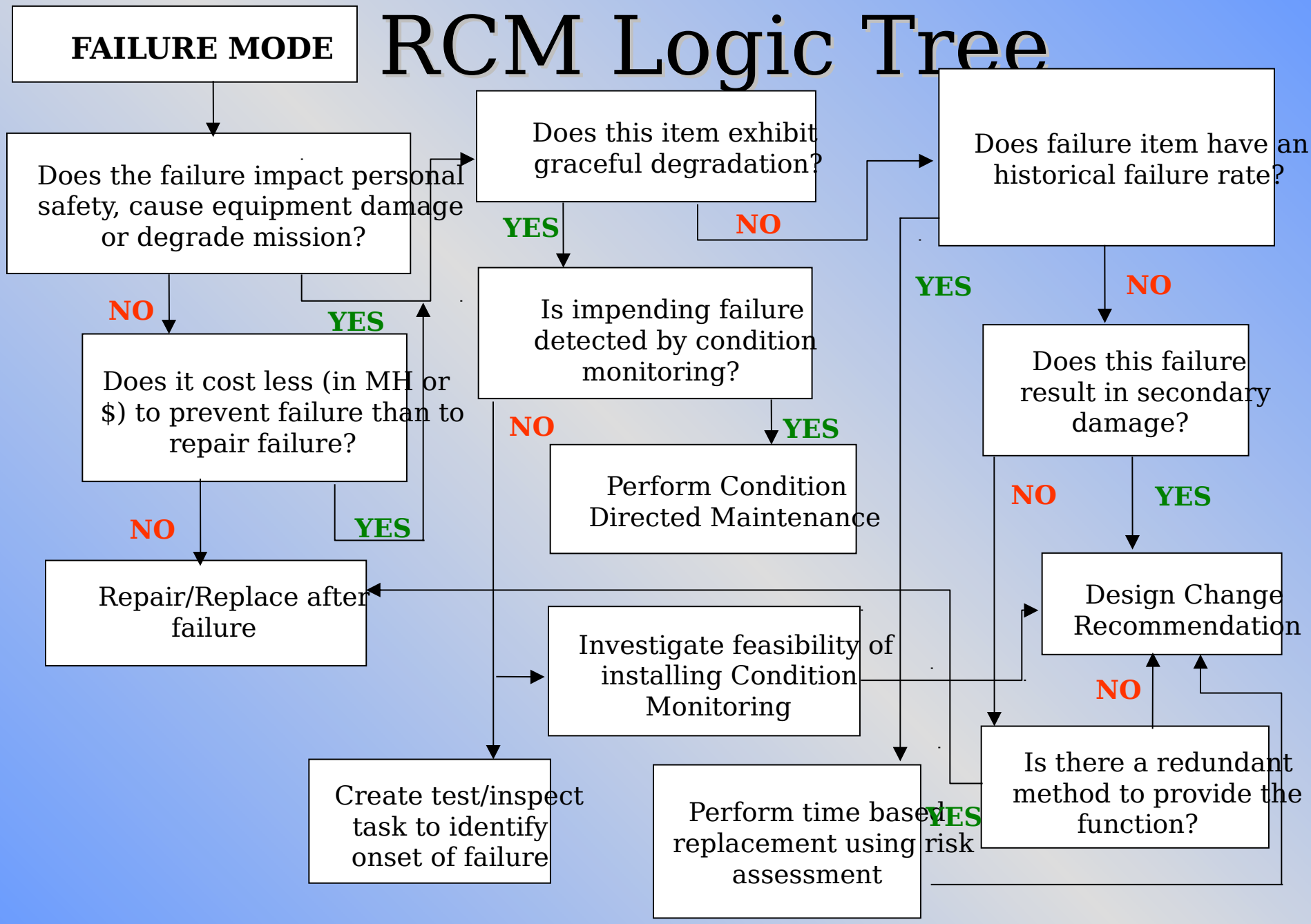
System Reliability

- Resources support system reliability
  - Preserve system function
- Implication
  - C-2 CASREP may not be worked at premium cost

RCM analysis being applied to improve PMS - more later

RCM Is CNO policy

RCM Logic Tree


FAILURE MODE
Does the failure impact personal safety, cause equipment damage or degrade mission?
NO
YES
Does it cost less (in MH or $) to prevent failure than to repair failure?
NO
YES
Repair/Replace after failure
Does this item exhibit graceful degradation?
YES
NO
Is impending failure detected by condition monitoring?
NO
YES
Perform Condition Directed Maintenance
Investigate feasibility of installing Condition Monitoring
Create test/inspect task to identify onset of failure
Does failure item have an historical failure rate?
YES
NO
Does this failure result in secondary damage?
NO
YES
Design Change Recommendation
NO
Is there a redundant method to provide the function?
YES
Perform time based replacement using risk assessment

Mission-Centered Maintenance (MCM)

Mission Reliability

- *Focus RCM principles on employment mission*
- *Implication*
  - *C-4 CASREP may not be worked if not required for employment*

MCM is CNSL policy

Condition-Based Maintenance (CBM)
Supports RCM & MCM

- *Maintenance tasks scheduled based on*
  - *Time*
  - *Failure*
  - *Evidence of need – most of CNSL off-ship maintenance*
- *Implication*
  - *Major maintenance done only w objective evidence of need exist*

CBM Is CNO policy

Continuous Maintenance (CM)

- *All phases operate continuously & concurrently*
  - *Discover*
  - *Document*
  - *Validate*
  - *Integrate*
  - *Screen*
  - *Estimate*
  - *Plan*
  - *Task*
  - *Execute*
  - *Analyze*

CM Is CNO policy

- *Implication*
  - *CO must ensure continuous flow of work candidates*
    - *Accurate*
    - *Objective*
    - *Prioritized*

How This Policy Affects You

- *Helps you get ready*
- *Helps you stay ready*
- *<u>You</u> must play*
  - *Don't leave maintenance & material readiness to shore community*

Policy Goal

Sustain an acceptable level of readiness

At command level must consider tradeoffs & risks

- *Ma… …sts*
- *Maintenance Backlog*

Measures

- *Need to Capture Expended*
  - *Man-hours*
  - *Material Costs*
- *Need to Determine and Track Maintenance Backlog*
  - *Valid CSMP*
  - *Must be able to estimate projected backlog*
- *Need to Capture actual time used for Maintenance*
  - *Reverse of time available for*

COMNAVSURFLANT
Continuous Maintenance

FROM KNOWLEDGE MU EFFECTIVENESS

Key elements

- Clear assignment of responsibilities
  - At all levels
- Robust assessment process
  - SEMAT/C5RA
- Common workflow
  - Integrated Fleet Maintenance Management
- Methodical scheduled availability planning process
  - Specific milestones

Waterfront Maintenance Management

- *COMNAVSURFLANT committed to*
  - *Ensuring ISIC and CO have resources*
  - *Granting commensurate responsibility and authority for establishing responsibilities and setting priorities*
  - *Supporting ISIC and CO with highest quality Maintenance Managers*

CO accountable for maintaining quality CSMP

ISIC

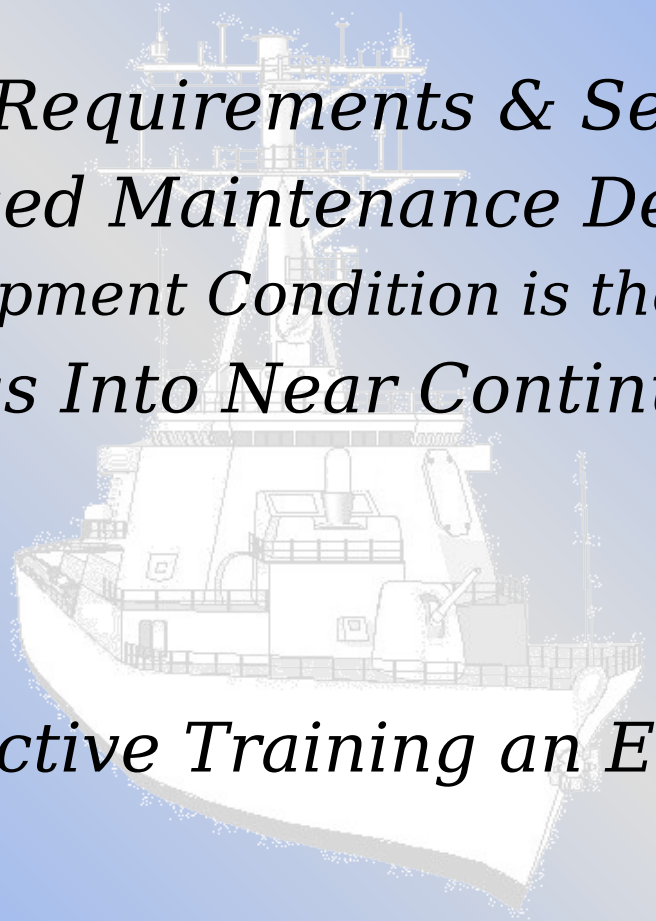
- *Responsible for operational readiness*
  - *Focuses on current readiness*
  - *Enduring interest in all facets of ships' maintenance*
- *Oversees*
  - *Maintenance philosophy*
  - *General priorities for repairs*
  - *Modernization*
  - *War-fighting issues*

Commanding Officer

- *Responsible for current readiness*
- *Material aspects*
  - *Robust zone inspection program*
  - *Organizational preventive maintenance*
  - *Well documented, prioritized CSMP*
  - *Close attention to*
    - *Work screening*
    - *Work planning*
    - *Work execution*

Continuous Maintenance
Executing the Policy

- *CO Establish Requirements & Set Priorities*
- *Condition Based Maintenance Decisions*
  - *Current Equipment Condition is the Essential Criteria*
- *Evolve Process Into Near Continuum of*
  - *Identification*
  - *Planning*
  - *Execution*
- *Ongoing, Effective Training an Essential Element*



Port Engineer

- *Original Role: CNO Availabilities*
  - *Technical Advisor*
  - *Overseer*
- *Traditional Role: <u>All</u> Non-organizational, Hull-specific Condition Based Maintenance*
  - *Maintenance Process Coach*
  - *Technical Advisor*
- *Expanding Role:*
  - *Coordinates Maintenance Team*
  - *MMBP Developer and Manager*

More Later

Command Level Availability Management Brief

Next Topic

Integrated Fleet Maintenance Management